Air Quality Permitting
Statement of Basis

November 4, 2005

Permit to Construct No. P-050031

Low's Ready Mix, Inc., Caldwell
Concrete Batch Plant

Facility ID No. 027-00094

Prepared by:

Harbi Elshafei, Air Quality Permitting Analyst 3
AIR QUALITY DIVISION

FINAL

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Acronyms, Units, and Chemical Nomenclatures

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
CO	carbon monoxide
cy/hr	cubic yard per hour
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAPs	Hazardous Air Pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
Low's	Low's Ready Mix, Inc.
m	meter(s)
MACT	Maximum Achievable Control Technology
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	sulfur dioxide
T/yr	tons per year
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

This facility is a concrete batch plant with a maximum production rate of 260 cubic yards per hour (cy/hr). The facility is a central mix plant manufactured by Erie Strayer Company. The components of the plant are as follows: a four compartment aggregate bin, a 12 cubic yard (cy) aggregate batcher, three cement storage silos, a 12 cy cement batcher, and a 12 cy tilt mixer. The plant combines sand, gravel, cement, and water to produce concrete.

The point sources of emissions at the facility are three cement storage silo dust collectors, a central dust collector, and a weigh batcher dust collector.

3. FACILITY / AREA CLASSIFICATION

The facility is not a major facility as defined by IDAPA 58.01.01.205, because its potential to emit is less than the applicable major source threshold, 250 T/yr. The facility is not a designated facility as defined by IDAPA 58.01.01.006.27. The facility is not a major facility for Tier I operating permit requirements as defined by IDAPA 58.01.01.008.10, because its potential to emit is limited to less than all applicable major source thresholds (i.e. the facility is a synthetic minor facility). The facility is not subject to any federal NSPS, NESHAP, or MACT requirement.

The facility is located in Canyon County, which is located within Air Quality Control Region 64 and UTM zone 11. This area is classified as unclassifiable for all regulated criteria pollutants. The primary Standard Industrial Classification (SIC) code for the facility is 3273. The Aerometric Information Retrieval System (AIRS) classification is "SM". The AIRS data entry table is provided in Appendix A.

4. APPLICATION SCOPE

Low's Ready Mix, Inc. (Low's) has submitted a PTC application for a concrete batch plant. This permit is the facility's initial permit.

4.1 Application Chronology

June 13, 2005	DEQ receives PTC application from Low's for construction a concrete batch plant. Application fees were included in the application.
July 13, 2005	The PTC application was determined complete.
July 26, 2005	An opportunity for public comment started on July 26, 2005, and ended on August 25, 2005. During this period no comments were received.
August 25, 2005	DEQ sent Low's a PTC notification of conditional approval letter.
September 13, 2005	Additional information was received from the Low's consultant (Spidell and Associates, a subcontractor for Geodyssey Geological Consultants).
September 15, 2005	DEQ provides draft permit to DEQs Boise Regional Office for review.

September 23, 2005 DEQ provides draft permit to facility for review.

5. PERMIT ANALYSIS

This section of the statement of basis describes the regulatory requirements for this PTC action:

Equipment Listing

Table 5.1 contains the equipment listing and the emissions controls.

Table 5.1 EQUIPMENT LISTING AND EMISSIONS CONTROLS

Source Description	Emission Controls
Concrete batch plant Manufacturer: Erie Strayer Company Model: Not available Maximum Production Rate: 260 cubic yards per hour	Particulate matter emissions from aggregate handling and from vehicles traffic are controlled by reasonable control of fugitive dust.
Three cement storage silos	Three silo dust collectors Manufacturer: C&W Model: LPR-6-S Filtration area: 267 square feet (ft^2) Blower: 1,760 actual cubic feet per minute (ACFM) Cleaning Mechanism: Pulse jet PM_{10} control efficiency: 99.99%
12 cubic yard Erie tilt mixer	Central dust collector Manufacturer: C&W Model: BP-790 Filtration area: 785 ft2 Blower: 5,000 ACFM Cleaning Mechanism: Pulse jet PM_{10} control efficiency: 99.90%
12 cubic yard cement weigh hopper	Weigh batcher dust collector Manufacturer: C&W Model: CP-35 Filtration area: 36 ft^2 Blower: 140 ACFM Cleaning Mechanism: Pulse jet PM_{10} control efficiency: 99.99%

5.2 Emissions Inventory

Emissions estimates were provided by Low's consultant, Geodyssey Geological Consultants. The facility's emissions estimates from the concrete batch plant for particulate matter (PM) and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}) are included in Appendix B of this statement of basis. Emissions factors from the concrete batch plant were obtained from U.S. EPA's *Compilation of Air Pollutant Emission Factors*, AP-42, Section 11.12, Concrete Batching, 10/01. Emissions estimates were checked by DEQ staff and were found to be acceptable.

The facility's potential to emit was estimated using the maximum concrete production rate, 260 cubic yard per hour (cy/hr), and full time operations (8,760 hr/yr). Actual emissions will be considerably less because the facility does not operate 8,760 hr/yr. The emissions estimates show that no criteria air pollutant is emitted in an amount that exceeds the major source threshold of 100 T/yr.

Toxic air pollutant (TAPs) and hazardous air pollutants (HAPs) emissions estimates are shown in Appendix B. The emissions estimates shows that emissions of any single HAP is less than 10 T/yr. Emissions of two HAPs or more were estimated to be well below the major source threshold of 25 T/yr for a combination of two HAPs or more.

The emissions estimates presented in Appendix B of this document provided the basis for the PM_{10} emissions incorporated in the permit. They are also provided the basis for the NAAQS analysis and for determining the processing fee assessed in accordance with IDAPA 58.01.01.225.

5.3 Modeling

The permittee supplied National Ambient Air Quality Standards (NAAQS) and TAPs ambient impact demonstrations in support of the PTC application. The DEQ's modeling memorandum concerning the review of these ambient impact demonstrations is included in Appendix C of this statement of basis. The results show that the facility has demonstrated compliance with the NAAQS and with IDAPA 58.01.01.585 and 586 to the satisfaction of DEQ.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 ..... Permit to Construct Required

Low's proposes to construct a source that does not qualify for PTC exemption in any of Sections 220 through 223 of the Rules. Therefore, a PTC is required.

IDAPA 58.01.01.203 ..... Permit Requirements for New and Modified Stationary Sources.

Ambient air quality modeling has predicted the facility will not violate the National Ambient Air Quality Standards, and Toxic Air Pollutant increments.

5.5 Permit Conditions Review

Permit Condition 2.3 *Emissions Limits* – establishes the facility's potential to emit, 1.52 T/yr PM_{10}. The potential to emit is based on the throughput limit in Permit Condition 2.5, and represents the controlled potential to emit.

Permit Condition 2.4 *Opacity Limit* – this permit condition limits the opacity from any point of emission at the facility to no more than 20% opacity, as required by IDAPA 58.01.01.625.

Permit Condition 2.5 *Throughput Limit* – establishes the cement throughput from the cement storage silos to limit the facility's potential to emit below major source thresholds. The throughput limit was established taking into account the efficiency of the cement storage silos dust collectors and the central dust collector.

Permit Condition 2.6 *Pressure Drop Monitoring Device* - requires that the permittee install, calibrate, operate, and maintain a pressure drop monitoring device to measure the pressure drop across the dust collectors to assure the dust collectors are operating within the manufacturer's specifications, thereby minimizing emissions.

Permit Condition 2.7 *Operations and Maintenance Manual* – requires that the permit develop an O&M manual for the dust collectors within 60 days of issuance of the permit.

Permit Condition 2.8 *Pressure Drop Across the Dust Collectors* – requires that the permittee maintain the pressure drop across the dust collectors within O&M manual and the dust collectors manufacturer's specifications.

Permit Condition 2.9 *Dust Collectors Maintenance and Operation* – requires maintain and operate the dust collectors according to the O&M manual and baghouse manufacturer's specifications and recommendations.

Permit Condition 2.10 *Reasonable Control of Fugitive Emissions* – requires reasonable control of fugitive emissions in accordance with IDAPA 58.01.01.650-651.

Permit Condition 2.12 *Throughput Monitoring* – requires the permittee to monitor and record the cement throughput from the cement storage silos monthly and annually to demonstrate compliance with Permit Condition 2.5.

Permit Condition 2.13 *Dust Collectors Pressure Drop Monitoring* – requires that the permittee monitor and record the pressure drop across the cement storage silo baghouse once per day when operating.

6. PERMIT FEES

Low's Ready Mix, Inc. paid the PTC application fee on June 13, 2005. In accordance with IDAPA 58.01.01.225 and .226 a PTC processing fee of $2,500.00 is required because the increase of emissions is of one to less than 10 tons per year. The processing fee was received on October 24, 2005.

Table 6.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0.0	0	0.0
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM_{10}	1.52	0	1.52
VOC	0.0	0	0.0
TAPS/HAPS	0.005	0	0.005
Total:	1.53	0	**1.53**
Fee Due	**$2,500.00**		

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

DEQ's Boise Regional Office was provided the draft permit for review on September 15, 2005.

7.2 Facility Review of Draft Permit

The facility was provided the draft permit for review on September 23, 2005.

7.3 Public Comment

An opportunity for public comment period on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c. from July 26, 2005 through August 25, 2005. During this time, there were no comments on the application and no requests for public comment period on DEQ's proposed action.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommends that Low's Ready Mix, Inc. be issued final PTC No. P-050030. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

HE/sd Permit No. P-050031

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Appendix A

Low's Ready Mix, Inc., Caldwell

P-050031

AIRS Information

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: Low's Ready Mix, Incorporated
Facility Location: Caldwell
AIRS Number: 027-00094

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	B							U
PM_{10}	B SM						SM	U
PT (Particulate)	B							
VOC	B							U
THAP (Total HAPs)	B							U
			APPLICABLE SUBPART					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B

Low's Ready Mix, Inc., Caldwell

P-050031

Emissions Inventory

4. EMISSION ESTIMATES

Emission estimates are based on a production rate of 260 cubic yards of concrete per hour and operating 8,760 hours per year. Table 1 shows the pounds of each raw material required to produce a cubic yard of concrete and the throughput in tons per hour.

$$\frac{523.12\ T}{hr} \left| \frac{yd^3}{4024\ lbs} \right| \frac{2{,}000\ lbs}{1\ Ton} = 260\ yd^3/h.$$

Table 1: Material Balance

Raw Material	lb/yrd³	tons/hr
Coarse Aggregate	1865.0	242.45
Sand	1428.0	185.64
Cement	491.0	63.83
Cement Supplement	73.0	9.49
Water (20 gallons)	167.0	21.71
Total	4024	523.12

$$\frac{73.32\ T}{hr} \left| \frac{8{,}760\ hrs}{yr} \right. = 642{,}283\ T/y.$$

(Cement & Cement supplem

PM and PM10 emission factors are from AP42 Table 11.12-4. These factors are in pounds per cubic yard of concrete and were used to calculate the PM and PM10 emissions summarized in Table 2.

$$\frac{0.80\ lb}{hr} \left| \frac{1\ T}{2{,}000\ lbs} \right| \frac{8{,}760\ hrs}{yr} = 3.504\ T/$$

Table 2: PM and PM10 Emission Estimates

Emission Source	Emission Factors PM lb/yrd³	Emission Factors PM10 lb/yrd³	PM Emissions (lb/hr)	PM Emissions (tons/yr)	PM 10 Emissions (lb/hr)	PM 10 Emissions (tons/yr)
Aggregate delivery to ground storage	6.43E-03	3.08E-03	1.67	7.33	0.800	3.504
Sand delivery to ground storage	1.50E-03	7.07E-04	0.39	1.71	0.184	0.805
Aggregate transfer to conveyor (2)	6.43E-03	3.08E-03	3.35	14.65	1.600	7.009
Sand transfer to conveyor (2)	1.50E-03	7.07E-04	0.78	3.42	0.368	1.610
Aggregate transfer to storage bins (2)	6.43E-03	3.08E-03	3.35	14.65	1.600	7.009
Sand transfer to storage bins (2)	1.50E-03	7.07E-04	0.78	3.42	0.368	1.610
Cement delivery to silo	2.43E-04	8.35E-05	0.06	0.28	0.022	0.095
Cement supplement delivery to silo	3.25E-04	1.79E-04	0.08	0.37	0.047	0.204
Weigh hopper loading	8.40E-03	3.95E-03	2.18	9.56	1.027	4.500
Central mix loading	3.10E-03	1.07E-03	0.81	3.53	0.279	1.220
Total				66.92		27.67

$$\frac{3.95 \times 10^{-3}\ lb}{yd^3} \left| \frac{260\ yd^3}{hr} \right. = 1.027\ lb/hr$$

Emission estimates for metals were calculated from emission factors found in AP42 Table 11.12-6. These emission factors are in pounds per ton of material (cement and/or cement supplement). Potential metal emissions are summarized in Table 3.

Table 3: Metal Emissions

Metal	Cement Silo Loading Emission Factor (lb/ton)	Cement Silo Loading Emissions (lb/hr)	Cement Silo Loading Emissions (tons/yr)	Cement Supplement Silo Loading Emission Factor (lb/ton)	Cement Supplement Silo Loading Emissions (lb/hr)	Cement Supplement Silo Loading Emissions (tons/yr)	Central Mix Batching Emission Factor (lb/ton)	Central Mix Batching Emissions (lb/hr)	Central Mix Batching Emissions (tons/yr)	Total Emissions (lb/hr)	Total Emissions (tons/yr)
Arsenic	4.34E-08	2.71E-07	1.18E-06	1.00E-06	9.48E-06	4.15E-05	1.87E-08	1.37E-06	6.01E-06	1.11E-05	4.86E-05
Beryllium	4.86E-10	3.10E-08	1.36E-07	8.04E-08	6.58E-07	3.76E-06	ND	—	—	6.88E-07	3.89E-06
Cadmium	4.86E-10	3.10E-08	1.36E-07	1.86E-06	1.86E-07	8.23E-07	7.10E-10	5.21E-08	2.28E-07	2.71E-07	1.18E-06
Chromium	2.90E-08	1.85E-06	8.11E-06	1.22E-06	1.16E-05	5.07E-05	1.27E-07	9.31E-06	4.08E-05	2.27E-05	9.90E-05
Lead	1.08E-08	6.88E-07	3.00E-06	5.20E-07	4.93E-06	2.16E-05	3.80E-08	2.80E-06	1.18E-05	8.31E-06	3.64E-05
Manganese	1.17E-07	7.47E-06	3.27E-05	2.58E-07	2.43E-06	1.06E-05	3.78E-08	2.77E-04	1.21E-03	2.67E-04	1.26E-03
Nickel	4.16E-08	2.67E-06	1.17E-05	2.26E-06	2.16E-05	9.46E-05	2.46E-07	1.82E-05	7.98E-05	4.25E-05	1.86E-04
Phosphorus	1.16E-05	7.53E-04	3.30E-03	3.54E-06	3.36E-05	1.47E-04	1.20E-06	8.80E-05	3.86E-04	8.75E-04	3.83E-03
Selenium	ND	—	—	7.24E-06	6.87E-07	3.01E-06	ND	—	—	6.87E-07	3.01E-06

Appendix C

Low's Ready Mix, Inc., Caldwell

P-050031

Modeling Review

MEMORANDUM

DATE: July 19, 2005

TO: Harbi Elshafei, Air Quality Division

THROUGH: Kevin Schilling, Stationary Source Modeling Coordinator, Air Quality Division KS

FROM: Dustin Holloway, Modeling Analyst, Air Quality Division DH

PROJECT NUMBER: P-050031

SUBJECT: Modeling Review for the Low's Ready Mix, Inc. Facility in Caldwell

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1.0 SUMMARY

Low's Ready Mix, Inc. submitted air quality dispersion modeling in support of a permit to construct application for a concrete batch plant to be located in Caldwell. The submittal included a facility-wide PM_{10} and lead impact analysis, and a toxic pollutant impact analysis.

Based on the results of the applicant's and DEQ's analyses, DEQ has determined that the modeling analysis: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) appropriately adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations at all receptor locations, when appropriately combined with background concentrations, were below stated air quality standards; 5) showed that the increase in toxic air pollutant (TAP) concentrations are within the applicable allowable concentrations in IDAPA 58.01.01.585-586.

2.0 BACKGROUND INFORMATION

2.1 Applicable Air Quality Impact Limits

The Low's Ready Mix facility is located near Caldwell in Canyon county. Canyon county is designated attainment or unclassifiable for all criteria air pollutants. Table 2.1 provides significant contribution levels (SCL), national ambient air quality standards (NAAQS) for criteria pollutants, and allowable TAP increments. When ambient impacts from project-specific emissions exceed the SCL facility-wide modeling is necessary to demonstrate compliance with NAAQS.

Table 2.1 APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels ($\mu g/m^3$)[a, b]	Regulatory Limit ($\mu g/m^3$)[c]	Modeled Value Used[d]
PM_{10}[e]	Annual	1	50[f]	Maximum 1st highest[g]
	24-hour	5	150[h]	Maximum 6th highest[i] Highest 2nd highest[j]
Arsenic	Annual	N/A	2.3E-04	Maximum 1st highest[g]
Nickel	Annual	N/A	4.2E-03	Maximum 1st highest[g]

[a] IDAPA 58.01.01.006.91
[b] Micrograms per cubic meter
[c] IDAPA 58.01.01.577 for criteria pollutants, IDAPA 58.01.01.585 for non-carcinogenic toxic air pollutants IDAPA 58.01.01.586 for carcinogenic toxic air pollutants.
[d] The maximum 1st highest modeled value is always used for significant impact analysis and for all toxic air pollutants.
[e] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[f] Never expected to be exceeded in any calendar year.
[g] Concentration at any modeled receptor.
[h] Never expected to be exceeded more than once in any calendar year.
[i] Concentration at any modeled receptor when using five years of meteorological data.
[j] The highest 2nd high is considered to be conservative for five years of meteorological data.
[k] Not to be exceeded more than once per year.

2.2 *Background Concentrations*

DEQ updated the background concentration data for Idaho in the Spring of 2003[1]. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. The background values used in this analysis are those for rural agriculatural areas in Idaho. The following table summarizes the background concentrations used in the analysis.

Table 2.2 BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background concentrations ($\mu g/m^3$)
PM_{10}	24-hour	73
	Annual	26

3.0 ASSESSMENT OF MODELING ANALYSIS

3.1 *Modeling Methodology*

Geodyssey Geological Consultants, Low's consultant, performed the modeling analysis. The submitted analysis included a facility-wide PM_{10} and lead impact analysis and a toxic pollutant impact analysis. DEQ did not review the lead impact analysis because the emissions were orders of magnitude less than the applicable modeling thresholds. The following table summarizes the parameters used in the modeling analysis and DEQ's review and determination of those parameters.

[1] Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

Table 3.1 MODELING PARAMETERS

Parameter	What Facility Submitted	DEQ's Review/Determination
Modeling protocol	None submitted	Although no protocol was submitted the analysis used appropriate methods and assumptions.
Model Selection	ISCST3	ISCST3 is an EPA recommended regulatory air dispersion model for industrial facilities.
Meteorological Data	1987-1991 Boise meteorological data	This is the most representative data available for this area.
Model Options	Regulatory default	This is the recommended setting for regulatory dispersion modeling.
Land Use	Rural	The area around this facility is rural.
Terrain	Impacts of terrain on dispersion were calculated	Receptor elevations were included in the analysis and the model was run to calculate the effects of both simple and complex terrain.
Building Downwash	Building dimensions were included in the analysis	ISCST3 was run to calculate the effects of building wakes on pollution dispersion.
Receptor Network	25 meter spacing along the fenceline and out to 200 meters; 50 meter spacing out to 500 meters; 100 meter spacing out to 1,000 meters	This grid is sufficient to reasonably resolve the maximum concentration.
Facility Layout	The analysis included the buildings at the facility which could affect pollution dispersion.	The model was compared to the submitted facility plot plan.

3.2 Emission Rates

The following table summarizes the emissions rates used in the analysis.

Table 3.2 EMISSION RATES

Source ID	Source Description	PM_{10} Emissions Rate (lb/hr)
NSILO	North Silo Dust Collector	0.011
MSILO	Middle Silo Dust Collector	0.047
SSILO	South Silo Dust Collector	0.011
CDSTC	Central Dust Collector	0.28

3.3 Emission Release Parameters

The following table summarizes the emission release parameters used in the analysis.

Table 3.3 EMISSION RELEASE PARAMETERS

Source ID	Easting (m)	Northing (m)	Elevation (m)	Stack Height (ft)	Stack Temperature (°F)	Exit Velocity (m/s)[a]	Stack Diameter (ft)
NSILO	532,214.7	4,834,878.0	742.2	84	68	0.001	3.67
MSILO	532,215.8	4,834,874.5	742.2	84	68	0.001	3.67
SSILO	532,217.0	4,834,871.5	742.2	84	68	0.001	3.67
CDSTC	532,212.0	4,834,870.0	742.2	23	68	0.001	2

[a] Sources with and exit velocity of 0.001 m/s have rain caps or horizontal releases.

SPIDELL AND ASSOCIATES
2403 Spaulding, Boise, Idaho 83705
(208) 336-4862

September 12, 2005

Mr. Harbi Elshafei
Permit Engineer
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706

Subject: Low's Concrete air dispersion modeling analysis.

Dear Mr. Elshafei,

The tables below show the emission estimates, exhaust parameters and PM_{10} modeling results with the cement batch dust collector (CP-35) included. Because both the cement batch dust collector and the central dust collector both vent emissions from the central mixing operation, I allocated 25% of the emissions to the cement batch dust collector and 75% of the emissions to the central dust collector (BP-790).

Table 3. Criteria Air Pollutant Emission Rates Used for Modeling Analysis

Source (ID Code)	PM-10 (lb/hr)	Lead (lb/hr)
North Silo Dust Collector (NSILO)	1.09E-02	3.48E-07
Middle Silo Dust Collector (MSILO)	4.70E-02	4.93E-08
South Silo Dust Collector (SSILO)	1.09E-02	3.48E-07
Central Dust Collector (CDSTC)	0.209	2.01E-06
Cement Batch Dust Collector (CBDC)	0.07	6.70E-06

Note: Total emissions from the central mixing operation of 0.279 lb/PM10 were split with 75% of the emissions allocated to the Central Dust Collector and 25% of the emissions allocated to the Cement Batch Dust collector.

$0.279 * 0.75 = 0.209$
$0.279 * 0.25 = 0.07$

Table 5. Source Stack Parameters

Source (ID Code)	Source Type	Stack Height (ft)	Stack Diameter (ft)	Stack Gas Temp. (°F)	Stack Gas Flow (acfm)
North Silo Dust Collector (NSILO)	Point	77.88	3.67	68	1,760
Middle Silo Dust Collector (MSILO)	Point	77.88	3.67	68	1,760
South Silo Dust Collector (SSILO)	Point	77.88	3.67	68	1,760
Central Dust Collector (CDSTC)	Point	23	1.00	68	5,000
Cement Batch Dust Collector (CBDC)	Point	40.5	0.42	68	140

Note: Exhaust stacks do not vent vertical. An exhaust flow velocity of 0.001 m/sec. Was used in the model analysis.

3.4 Results

The results of the analysis demonstrate, to DEQ's satisfaction, that the impacts from this facility will not cause or significantly contribute to a violation of any ambient air quality standards nor will this facility cause an increase in TAP concentrations which exceed the allowable increments in IDAPA 58.01.01.586. The following tables summarize the results of the dispersion modeling analysis.

3.4.1 Full Impact Analysis Results

Table 3.4 PM_{10} MODELING RESULTS

Pollutant	Averaging Period	Facility Ambient Impact (µg/m3)	Background Concentration (µg/m3)	Total Ambient Concentration (µg/m3)	NAAQS (µg/m3)	Percent of NAAQS
PM_{10}	24-HR	17.9	73	90.9	150	60.6%
	Annual	4.1	26	30.1	50	60.1%

3.4.2 Toxic Air Pollutants Results

Table 3.5 TOXIC POLLUTANT MODELING RESULTS

Pollutant	Averaging Period	Facility Ambient Impact (µg/m3)	AACC (µg/m3)	Percent of AACC
Arsenic	Annual	0.00002	2.30E-04	8.7%
Nickel	Annual	0.00027	4.20E-03	6.4%

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Table 7. Full Impact Analysis for Criteria Pollutants

Pollutant	Averaging Period	Ambient Impact (ug/m³)	Background Conc. (ug/m³)	Total Ambient Conc. (ug/m³)	Regulatory Limit (ug/m³)	Percent of NAAQS
PM-10	24-hour	13.28718	73	86.287	150	57.5
	Annual	3.59094	26	29.591	50	59.2

As can be seen in the modeling results, allocating a percentage of the central mix emissions to the cement batch dust collector, which vents at a higher elevation, reduces the ambient impact.

Please feel free to contact me at 336-4862 should you need further information or have any questions.

Sincerely,

Randy Norell

Randy Norell